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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,221

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Steven Porter Hotelling

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EXAMINER

CHAPMAN JR, JOHN E

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,221	Applicant(s) HOTELLING ET AL.	
	Examiner John E. Chapman	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,7,9-11,22 and 23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7,9-11,22 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 7 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 is inconsistent with claim 1, since claim 1 recites “a calibration value generated external to the motion sensor and transmitted to the digital electronics.”

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 5, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okoshi et al. (6,880,399) in view of Chida et al. (GB 2378517) and Hayworth et al. (6,823,734), and further in view of Horton et al. (6,421,622).

Okoshi et al. discloses a motion sensor comprising an assembly (30) having suspension members (44), the suspension members isolating the assembly and components mounted on the assembly from vibrations (col. 6, lines 1-13) and passing signals between at least one component

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mounted on the assembly and an external computer not mounted on the assembly (col. 8, lines 46-52); a vibrating member (21) mounted on the assembly; a driver (25, 26) mounted on the assembly for driving the vibrating member; and a sensor (27) mounted on the assembly for detecting movement of the vibrating member in response to rotation of the assembly (col. 8, lines 41-43), the sensor outputting an analog signal responsive to the rotation of the assembly; and an IC (35) mounted on the assembly and coupled to the sensor and the suspension members, the IC receiving the analog signal from the sensor and transmitting, through at least one of the suspension members (44), data indicative of the rotation of the assembly to the computer. The only difference between the claimed invention and the prior art consists in providing a digital electronics on the assembly for applying a drive signal to the driver and for transmitting a digital signal to the external computer. Chida et al. discloses a motion sensor (10A) and a circuit device (10B) in Fig. 10 comprising a driving circuit (70) and an output circuit (90). See paragraph [0090]. Accordingly, it would have been obvious to one of ordinary skill in the art to incorporate a driving circuit in the IC (35) of Okoshi in order to drive the vibrating member (21). Chida further teaches implementing that the controller (shown in Fig. 7) can be implemented using a single special purpose integrated circuit (ASIC)(see paragraph [0097]), and Hayworth et al. teaches providing a digital application specific integrated circuit (ASIC) in order to provide a compact, lightweight and inexpensive precision inertial reference unit (col. 5, lines 41-47). Accordingly, it would have been obvious to provide a digital ASIC for the IC (35) of Okoshi et al. in order to provide a compact, lightweight and inexpensive precision inertial reference unit. Regarding storing a calibration value, Okoshi provides terminals 47, 48 and 49 for calibrating the sensor (col. 4, lines 37-39) but does not articulate on the calibration process. Nevertheless, it is

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well known in the art to store a calibration value in order to provide a calibrated output signal, as evidenced by Horton (col. 2, lines 1-3). Accordingly, it would have been obvious to store a calibration value in order to provide a calibrated output signal.

Regarding claim 9, it is well known in the art to control the amplitude of vibration of a vibrating member.

Regarding claim 10, it is well known in the art to control the startup frequency of the driver of a vibrating member.

5. Claims 3, 4 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okoshi in view of Chida and Hayworth and Horton as applied to claim 1 above, and further in view of Hamisch et al. (5,247,252) or Henderson et al. (5,237,871).

Regarding claims 3 and 22, the only further difference between the claimed invention and the prior art consists in using helical springs to mount the assembly (30) of Okoshi et al. Hamisch discloses contact springs 18 for both the elastic suspension of the sensor (10) and the transmission of the electric measuring signal (see col. 3, lines 47-54). Henderson discloses springs (36) for suspending a sensor as well as providing electrical connection (see col. 6, lines 34-37). Accordingly, it would have been obvious one of ordinary skill in the art to use helical springs to mount the assembly (30) of Okoshi et al.

Regarding claim 4, using a serial digital communication protocol is common in the art.

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection

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is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claim 23 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 5 of U.S. Patent No. 7,464,590 (‘590) in view of Okoshi et al.

Claim 5 of ‘590 recites a vibratory rotational-rate sensor comprising an assembly isolated from

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external vibrations, wherein the sensor detects movement of a vibrating mass and outputs an analog signal representative of rotational rate, and a digital register for storing a programmable number of digital samples allowing the sensor to have a flexible response time, i.e., effective bandwidth. The only difference between the claimed invention and that of claim 5 of '590 consists in using suspension members for the assembly to pass digital signals between the digital components mounted on the assembly and an external controller, which would have been obvious in view of Okoshi, which teaches a motion sensor suspension members (44) isolating an assembly (30) and components mounted on the assembly from vibrations (col. 6, lines 1-13) and passing signals between at least one component mounted on the assembly and an external computer not mounted on the assembly (col. 8, lines 46-52).

9. Applicant's arguments filed November 12, 2009 have been fully considered but they are not persuasive. Regarding the rejection of the claims under 35 U.S.C. 103(a), applicant argues that neither Okoshi, nor Chida, nor Hayworth, taken individually or in combination, show or suggest at least the "digital electronics mounted on the assembly and coupled to the driver, the sensor, and the suspension members, the digital electronics applying a drive signal to the driver, receiving the analog signal from the-sensor, and transmitting, through at least one of the suspension members, digital data indicative of the rotation of the assembly to the external controller, the digital electronics also storing a calibration value generated external to the motion sensor and transmitted to the digital electronics over at least one of the suspension members" element of amended claim 1. Applicant argues that Okoshi does not show a digital IC for providing a digital signal to an external computer. However, Okoshi does show an IC for

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providing a signal to an external computer, and an IC comprising digital electronics would have been obvious to one of ordinary skill in the art. The mere substitution of digital circuitry for analog circuitry is generally regarded as obvious. See *The Magnavox Company et al. v. Mattel, Inc.*, et al., 216 USPQ 28 (N.D. Ill. 1982), 47. Applicant further argues that Okoshi does not show or suggest the “digital electronics mounted on the assembly and coupled to the driver, the sensor, and the suspension members, the digital electronics applying a drive signal to the driver, receiving the analog signal from the-sensor, and transmitting, through at least one of the suspension members, digital data indicative of the rotation of the assembly to the external controller, the digital electronics also storing a calibration value generated external to the motion sensor and transmitted to the digital electronics over at least one of the suspension members” element of amended claim 1. However, Okoshi has not been relied upon to show or suggest the “digital electronics mounted on the assembly and coupled to the driver, the sensor, and the suspension members, the digital electronics applying a drive signal to the driver, receiving the analog signal from the-sensor, and transmitting, through at least one of the suspension members, digital data indicative of the rotation of the assembly to the external controller, the digital electronics also storing a calibration value generated external to the motion sensor and transmitted to the digital electronics over at least one of the suspension members” element of amended claim 1. Rather, Okoshi in view of Chida and Hayworth and Horton has been relied upon to suggest such an element. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant further argues that neither Chida nor Hayworth appear to show or

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suggest the “digital electronics mounted on the assembly and coupled to the driver, the sensor, and the suspension members, the digital electronics applying a drive signal to the driver, receiving the analog signal from the-sensor, and transmitting, through at least one of the suspension members, digital data indicative of the rotation of the assembly to the external controller” element of amended claim 1. Again, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. Rather the claimed element would have been obvious in view of the combined teachings of Okoshi, Chida and Hayworth.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John E. Chapman whose telephone number is (571) 272-2191. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John E Chapman/
Primary Examiner
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